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STATE'S  
EXHIBITRec 212  
7/13/11 100782

15 Mar 2011

Lt. Patrick D. Smith  
 Coquille Police Department  
 851 North Central Blvd.  
 Coquille, Oregon 97423

***Re: Status Report - Leah Freeman Homicide Investigation***

Dear Lt. Smith,

This status report describes the analyses we have conducted to date regarding the above referenced case.

**Samples:**

Three waves of evidence were received by our laboratory:

Wave 1 – received 17 July 2009

- Exhibit 26 – tape lift from shirt
- Exhibit 27 – two tape lifts from pants

Wave 2 – received 10 Feb 2010

- Item # 3224 – foam from inside trunk latch
- Item # 3225 – fiber material from trunk
- Item # 3226 – carpet from back window
- Item # 3231 – four tape lifts from trunk
- Item # 3233 – vacuum filters from trunk (two filters) and back seat (one filter)

Wave 3 – received 24 May 2010

- Item # 212 – blue jean pants
- Item # 213 – tank top shirt
- Item # 214 – sports bra
- Item # 160 – Nike shoe (also listed as # 215)
- Item # 170 – Nike shoe (also listed as # 216)

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Page 2**Analysis:**

As with the arrival of the evidence, our examination can be divided into three waves:

*Wave 1*

The three tapelifts, one from the shirt (Ex. 26) and two from the pants (Ex. 27), were examined for the presence of trace evidence. Various particles of debris, including numerous fibers and hairs, both animal and human, were observed on the tape lifts. Nine human hairs (coded 4A, 17C, 19A, 19C, 20D #1, 20D #2, 23D, 28B #1, and 28B #2) from the shirt tape lift were isolated, placed on individual slides, and returned to Kris Karcher, on 28 January 2010, for DNA analysis.

*Wave 2*

Preliminary examinations were conducted on the foam from the trunk (# 3224), the fibrous material from the trunk (# 3225), and the carpet from the back window (#3226). The carpet from the back window appears to be residential in origin and therefore, did not originate from the vehicle.

our examination primarily focused on the tapelifts (# 3231) and the vacuum samples (# 3233) from the trunk and back seat of the vehicle.

Various particles of debris, including numerous fibers and hairs, both animal and human, were observed on the tape lifts and the material from the vacuum samples. Two human hairs (coded trunk #1 and trunk #2) were isolated from the trunk vacuum samples, placed on individual slides, and returned to Kris Karcher, on 17 March 2010, for DNA analysis. Subsequently, an additional, very short (~4mm) human hair fragment was recovered from the vacuum sample from the trunk.

*Wave 3*

Five items of clothing, a pair of jeans (# 212), a tank top (# 213), a sports bra (# 214), and two shoes (# 160 and # 170) were examined for the presence of trace evidence, particularly any potential paint particles. Most of the fabric from the jeans, the tank top and the sports bra, were infiltrated with decomposition products which hampered the examination of their surfaces for the detection of trace evidence.

A gray/tan paint particle was recovered from the front of the tank top. The analysis of this paint and comparisons to known paint samples (yet to be received by our laboratory) will be the subject of a subsequent report.

Other materials, including hairs and other particles, were recovered from these five items. No additional analyses have been requested at this point in time regarding these materials.

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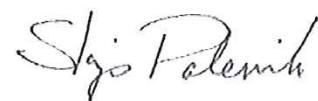
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If you have any questions concerning this report or if we may be of further assistance, please do not hesitate to contact either of us directly. Thank you for consulting Microtrace.

Sincerely,



Jason Beckert  
Research Microscopist



Skip Palenik  
Senior Research Microscopist

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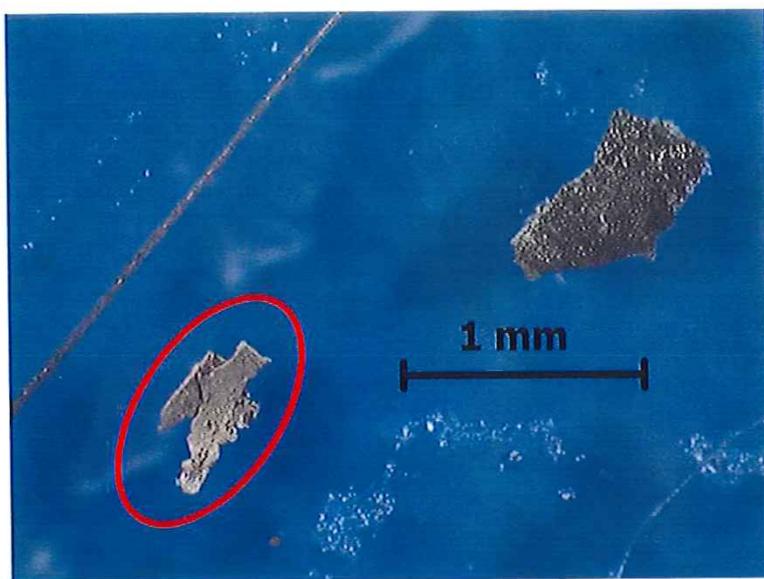


Figure 1. Gray/tan paint particle recovered from Item #213 (circled in red).

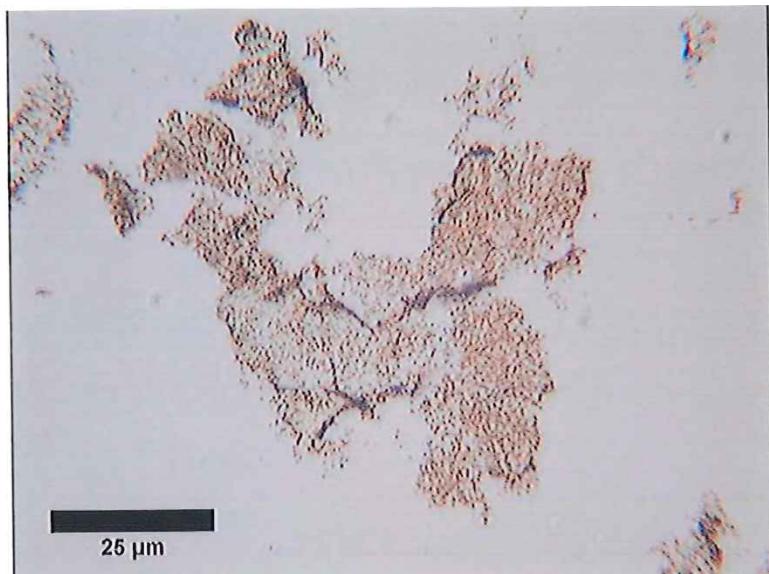


Figure 2. Subsample of the paint particle from above mounted in 1.66 Index of refraction oil and viewed using transmitted light.

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**STATE'S EXHIBIT**Rec 213  
7/13/11 10CR0782

06 April 2011

Lt. Patrick D. Smith  
 Coquille Police Department  
 851 North Central Blvd.  
 Coquille, Oregon 97423

***Re: Paint Analysis - Leah Freeman Homicide Investigation***

Dear Lt. Smith,

This report describes the analyses we have conducted regarding the paint particle that we isolated from the tank top (Item #213) (see status report dated 15 Mar 2011).

**Samples:**

In addition to items already in our possession (see status report dated 15 Mar 2011), we received the following additional evidence on 16 Mar 2011:

RLM 001 - paint sample from Mustang (top of trunk)  
 RLM 002 - paint sample from Mustang (bottom of trunk)  
 RLM 003 - paint sample from Mustang (side of trunk)  
 RLM 004 - paint sample from Mustang (driver side rear panel)  
 RLM 005 - paint sample from Mustang (under hood)  
 RLM 006 - paint sample from Mustang (pass. side front end)

PDS 001 - paint sample from KIA (left front fender)  
 PDS 002 - paint sample from KIA (left front fender primer)  
 PDS 003 - paint sample from KIA (right front bumper)  
 PDS 004 - paint sample from KIA (trunk wall/floor)  
 PDS 005 - paint sample from KIA (trunk lid)

**Analysis:**

A questioned gray/tan paint particle was isolated during the examination and recovery of trace evidence from the tank top (Item #213) (Figure 1). The particle consists of a single layer. A small subsample of the particle was isolated for further analysis. A portion of this subsample was mounted in 1.66 index of refraction oil for examination using polarized light microscopy (PLM). A high concentration of discrete particles, likely titanium dioxide, can be observed at high magnifications (Figure 2).

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Another portion of this subsample was prepared for chemical analysis using Fourier transform infrared microspectroscopy (micro-FTIR). Interpretation of the spectrum (Figure 3) indicates that the paint is an alkyd melamine containing titanium dioxide (used as a pigment and/or as a filler).

The eleven known paint samples (RLM 001-006 and PDS 001-005) were examined for the presence of paint similar in color to the questioned gray/tan particle from Item #213. Samples of any paint that resembled the questioned paint particle were isolated analyzed by micro-FTIR. Numerous off-white, gray or tan colored paints were analyzed but none were chemically consistent with the questioned paint particle from Item #213.

**Conclusions:**

The questioned particle of gray/tan paint recovered from Item #213 was determined to be inconsistent with all of the examined paint from the eleven known samples (RLM 001-006 and PDS 001-005).

It should be noted that while automotive paint is a likely possibility for the origin of the questioned paint particle (based on the presence of the melamine catalyst), others such as maintenance paints (e.g., paint used on tools), are possible as well.

If you have any questions concerning this report or if we may be of further assistance, please do not hesitate to contact either of us directly. Thank you for consulting Microtrace.

Sincerely,



Jason Beckert  
Research Microscopist



Skip Palenik  
Senior Research Microscopist

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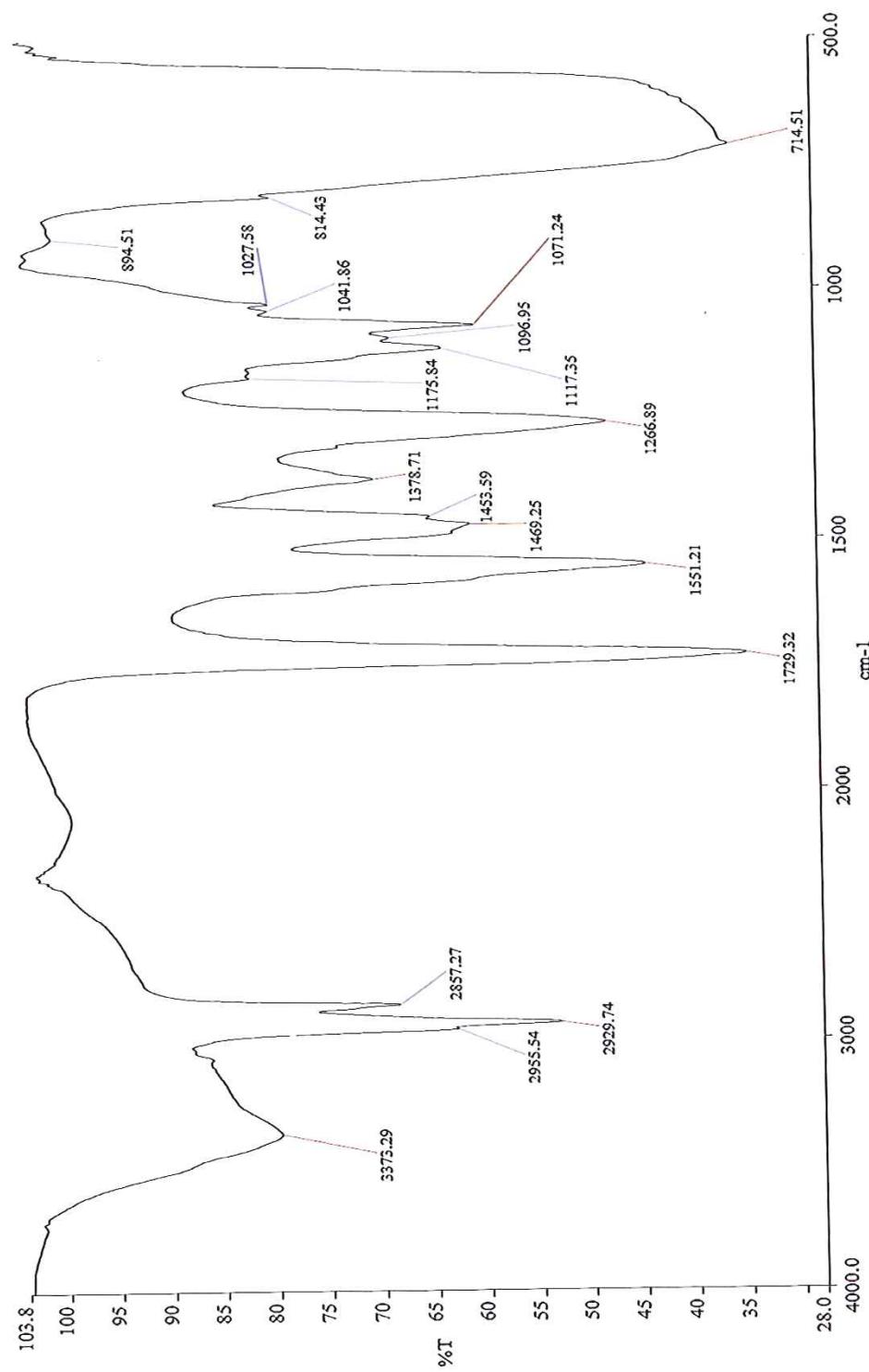


Figure 3. FTIR spectrum of the gray/tan paint particle recovered from the #23.

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09 Mar 2011 M109-0075

JCB

## Item #214 - bra

- opened after packaging; item's original packaging in separate bag
- item in unsealed ziplock
- item has heavy amounts of cleaning products
- isolated a few hairs/fibers → petri dish
- collected debris <sup>not</sup> into a separate petri dish
- includes plastic film (irregular in shape) from the back, center in narrow area where straps join together

10 Mar 2011

## Item #212 - jeans

- opened after packaging
- item in unsealed ziplock; item's original packaging in separate bag
- front shows ~3 parallel abrasions on right thigh just above knee
- isolated a few hairs/fibers + particles from front + back (separate petri dishes)
- three greenish areas on front right side below <sup>JCB</sup> facing along ~ line just off the zipper
- collected from the middle area
  - looks like corrosion products observed on buttons
  - took control sample from ~ button
- shook/agitated jeans to collect debris onto paper + then transferred material to petri dish
  - stereo - isolated several hairs + put into small petri dish
  - green particles - corrosion products? - did not isolate